Aditya Kumar Singh

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EDUCATION

- **International Institute of Information Technology** — Hyderabad, India
  MS by Research - CSE; GPA: 9.5 — *August 2021 - July 2023*
  Courses: *Statistical Methods in AI, Data Analytics, Digital Image Processing, Computer Vision, NLP, Multivariate Statistics*

- **Indian Institute of Science Education and Research** — Kolkata, India
  Integrated BS-MS - Mathematics & Statistics; GPA: 8.38 — *August 2016 - July 2021*
  Courses: *Regression Analysis, DSA, Statistical Inference, Linear Algebra I and II, Real Analysis I and II, Group and Ring Theory*

EXPERIENCE

- **Graduate Research Assistant - CVIT Lab @ IIIT Hyderabad** — OnSite
  Research student (Full-time) under Dr. Makarand Tapaswi — *January 2022 - Present*
  - **Long-from video summarization**: via human-emotion recognition and tracking as well as auto key-points detection in long-form videos like web-series, and movies, which in itself is a novel research problem. It involves a novel way of auto-labeling multi-modal data samples. Further, the approach to fuse multi-modal signals and train our model to make sense of it is itself a very challenging task. *Paper arriving soon!*
  - **[CVPR'23] - Learning emotion/mental-states for movie characters and scenes**: via joint-modeling on action, characters and dialog signals to predict multiple (multi-label) emotions/mental-states for each character and the corresponding scene. *Link coming soon!*

- **MS Thesis @ ISI Kolkata** — OnSite
  Project Student (Part-time) under Dr. Uma Shankar — *August 2020 - July 2021*
  - **Modeling and Reviewing**: Multi-label classification of highly imbalanced Amazon rainforest images via transfer learning using all possible fine-tuned pre-trained models used in ImageNet challenges till 2020. Plus, implemented & reviewed promising ML models (Random Forest, XGboost, GBC, etc.) on the same.
  - **Final touch**: Ensembled all the above ImageNet models in *Integrated Stacking* format and fine-tuned (*Meta learning*) to achieve the best result among all the tried out methods. Paper Link

- **Teaching Assistant (Head TA) @ IISER Kolkata** — August 2020 - July 2021
  - **CS3102 – Programming in Python (Instructor: Dr. Dwaipayan Roy)**: For Ph.D. and Masters student.
  - **CS1101 – Introduction to Programming (Instructor: Dr. Dwaipayan Roy)**: For UnderGrad students

SKILLS SUMMARY

- **Languages**: Python, C, MATLAB, R
- **Frameworks**: Wandb, Scikit, NLTK, SpaCy, TensorFlow, Keras, PyTorch, Huggingface
- **Tools & Platforms**: Linux, Web, Windows, Docker, GIT

PROJECTS

- **Video Object Segmentation**: involves segmenting moving objects from the background using UVOS Methods: MATNet and RTNet & SVOS: TransVOS. *Tech & Tools: Python, Matlab, PyTorch, OpenCV (May '22).* MATNet Link

- **Hypernym Discovery - NLP**: Generate possible hypernyms for a given hyponym via detecting hyponym-hypernymy relation for a list of pair of words. *Tech: Python, NLTK, PyTorch, Pyhocon (May '22).* Project Link

- **Vehicle Tracking and Counter - Kalman Filtering**: *Tools: OpenCV, Tkinter (December '21).* Project Link

- **Natural Language Understanding with the Quora Question Pairs Dataset**: Detect dupliacy within the given pair of question from Quora. *Tech & Tools: Python, Huggingface, Scikit-Learn, PyTorch (November '21).* Project Link

PUBLICATIONS

- **CVPR'23: How you feelin'? Learning Emotions and Mental States in Movie Scenes**: *Link Coming Soon!*
- **MS Thesis @ IISER Kolkata: Multi-Label Classification on Remote-Sensing Images**: Link

HONORS AND AWARDS

- **Finalist at QIF** (Qualcomm Innovation Fellowship India - 2022) - May, 2022
- **Winner at ICVGIP 2021** Contest - Audio-Visual Retrieval Track - December, 2021
- **INSPIRE** scholarship holder funded by DST Govt. of India, 2016 to 2021

VOLUNTEER EXPERIENCE

- **Member @ Student Parliament IIIT Hyderabad** — Hyderabad, India
  Addressed & resolved issues faced by students (e.g., placement, technical, and hostel) — *March 2022 - Present*
- **Placement coordinator @ Student Placement Committee IIIT Hyderabad** — Hyderabad, India
  Handled logistics of invited companies and organized interviews. — *Aug 2022 - Present*